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I CLAIM:

1. A logic tree branch for steering electromagnetic energy comprising anactive element for directing said electromagnetic energy into one of first and second paths and a passive element disposed in said second path for directing said electromagnetic energy into a path parallel to said first path when said electromagnetic energy is directed into said second path.

2. A logic tree branch according to claim 1 further including a source of said electromagnetic energy having a given wavelength and circular polarization coupled to said active element.

3. A logic tree branch according to claim 2 wherein said active element includes an element transmissive to said given polarization and wavelength and reflective to said given wavelength and a polarization opposite to said given polarization.

4. A logic tree branch according to claim 2 wherein said passive element includes an element reflective to said given wavelength and a polarization opposite to said given polarization.

5. A logic tree branch according to claim 2 wherein said active element includes phase shifter means disposed between said source of electromagnetic energy and said active element.

6. A logic tree branch according to claim 2 wherein said active element includes an element made of cholesteric liquid crystal material.

7. A logic tree branch according to claim 2 wherein said passive element includes an element made of cholesteric liquid crystal material.

8. A logic tree branch according to claim 2 further including a programmable pulse of source connected to said active element.

9. A logic tree branch according to claim 2 further including means connected to said source of electromagnetic energy for modulating said source.

10. A logic tree branch according to claim 5 wherein said phase shifter means includes a phase shifting material responsive to different potential levels for switching said phase shifting material between states which provide electromagnetic energy having said given polarization and said opposite polarization.

11. A logic tree branch according to claim 5 wherein said phase shifting means further includes electrode means for applying said different potential levels to said phase shifter material.

12. A logic tree for steering electromagnetic energy comprising a plurality of stages, the first of said stages including a branch for directing said energy to a similar branch in each succeeding stage, each of said stages containing 2^{n-1} branches where n is the stage number.

13. A logic tree according to claim 12 wherein each of said branches includes an active element for directing said electromagnetic energy into one of first and second paths and a passive element disposed in said second path for directing said electromagnetic energy into a path parallel to said first path when said energy is directed into said second path.

14. A logic tree according to claim 13 further including a source of said electromagnetic energy having a given wavelength and circular polarization coupled to said active element of said first stage.

15. A logic tree according to claim 14 wherein said active element includes an element transmissive to said given wavelength and circular polarization and reflective to said given wavelength and to a circular polarization opposite to said given circular polarization.

16. A logic tree according to claim 14 wherein said passive element includes an element reflective to said given wavelength and a circular polarization opposite to said given circular polarization.

17. A logic tree according to claim 14 wherein said active element includes phase shifter means disposed in electromagnetically coupled relationship with said active element.

18. A logic tree according to claim 14 wherein said active element includes an element made of cholesteric liquid crystal material.

19. A logic tree according to claim 14 wherein said passive element includes an element made of cholesteric liquid crystal material.

20. A logic tree according to claim 14 further including a programmable pulsed source connected to said active element.

21. A logic tree according to claim 14 further including means connected to said source of electromagnetic energy for modulating said source.

22. A logic tree according to claim 14 further including half-wave retarders disposed in electromagnetically coupled relationship with selected of said active and passive elements of the last stage of said plurality of stages to convert said electromagnetic energy emanating from said active and passive elements to a single circular polarization.

23. A logic tree according to claim 17 wherein said phase shifter means includes a phase shifting material responsive to different potential levels for switching said phase shifting material between states which switch incident electromagnetic energy between said given polarization and said opposite polarization.

24. A logic tree according to claim 23 wherein said phase shifting means further includes means for applying said different potential levels to said phase shifter material.

25. A flat panel logic tree display array for steering electromagnetic radiation comprising a plurality of first logic trees each of said first logic trees having a plurality of stages, a single input port, a plurality of output ports, and wherein said array has 2^m x 2^n output ports and *m* and *n* are stage numbers.

26. An array according to claim 25 further including a plurality of sources of electromagnetic radiation each electromagnetically coupled to said a single input port of an associated first logic tree and having a given wavelength and circular polarization.

27. An array according to claim 25 further including a second logic tree similar to each of said plurality of first logic trees having a plurality of stages, a single input port and a plurality of output ports each of said output ports of said second logic tree being connected to a different one of said input ports of said plurality of first logic trees.

28. An array according to claim 26 wherein the first stage of said plurality of stages includes a branch for directing said radiation to a similar branch in each succeeding stage, each of said stages containing 2^{n-1} branches where *n* is the stage number.

29 An array according to claim 27 further including at least a single source of electromagnetic radiation electromagnetically coupled to said single port of said second logic tree.

30. An array according to claim 27 further including a half-wave retarder electromagnetically coupled to selected ones of said output ports of said plurality of first logic trees.

31. An array according to claim 27 further including a half-wave retarder electromagnetically coupled to selected ones of said output ports of said plurality of first logic trees.

32. An array according to claim 27 wherein said plurality of output ports of said plurality of first logic trees are disposed in the form of a rectilinear array.

33. An array according to claim 27 wherein said plurality of first logic trees and said second logic tree are disposed in a orthogonal relationship.

34. An array according to claim 27 wherein each of said plurality of first logic trees is disposed in stacked relationship with others of said first logic trees.

35. An array according to claim 27 wherein said plurality of output ports of said second logic tree are remote from each said single input port of said plurality of first logic trees.

36. An array according to claim 27 further including at least a single source of electromagnetic radiation optically coupled to said single input port of said second logic tree and means connected to said at least a single source for modulating said at least a single source of electromagnetic radiation..

37. An array according to claim 27 wherein the first stages of said plurality of stages of said first logic trees and the first stage of said second logic tree include a branch for directing said radiation to a similar branch in each succeeding stage, each of said stages containing 2^{n-1} branches where n is the stage number.

38. An array according to claim 28 wherein each of said branches includes an active element for directing said electromagnetic radiation into one of first and second paths and a passive element disposed in said second path for directing said radiation into a path parallel to said first path when said radiation is directed into said second path.

39. An array according to claim 28 wherein said active element includes an element transmissive to said given wavelength and circular polarization and reflective to said given wavelength and to a circular polarization opposite to said given circular polarization.

40. An array according to claim 28 wherein said passive element includes an element reflective to said given wavelength and a circular polarization opposite to said given circular polarization.

41. An array according to claim 28 wherein said active element includes phase shifter means disposed in electromagnetically coupled relationship with said active element.

42. An array according to claim 28 wherein said active element includes an element made of cholesteric liquid crystal material.

43. An array according to claim 28 wherein said passive element includes an element made of cholesteric liquid crystal material.

44. An array according to claim 28 further including a programmable pulsed source connected to said active element.

45. An array according to claim 28 further including means connected to said source of electromagnetic radiation for modulating said source.

46. An array according to claim 28 further including half wave retarders disposed in electromagnetically coupled relationship with selected of said active and passive elements of the last stage of said plurality of stages to convert said electromagnetic energy emanating from said active and passive elements to a single circular polarization.

47. An array according to claim 37 wherein each of said branches of said first and second logic trees includes an active element for directing said electromagnetic radiation into one of first and second paths and a passive element disposed in said second path for directing said radiation into a path parallel to said first path when said radiation is directed into a first path.

48. An array according to claim 37 wherein said active element includes an element transmissive to said wavelength and circular polarization and reflective to said given wavelength and to a circular polarization opposite to said given circular polarization.

49. An array according to claim 37 wherein said passive element includes an element reflective to said given wavelength and a circular polarization opposite to said given circular polarization.

50. An array according to claim 37 wherein said active element includes phase shifter means disposed in electromagnetically coupled relationship with said active element.

51. An array according to claim 37 wherein said active element includes an element made of cholesteric liquid crystal material.

52. An array according to claim 37 wherein said passive element includes an element made of cholesteric liquid crystal material.

53. An array according to claim 37 further including a programmable pulsed source connected to said active element.

54. An array according to claim 37 further including means connected to said source of electromagnetic energy for modulating said source.

55. An array according to claim 37 further including half-wave retarders disposed in electromagnetically coupled relationship with selected of said active and passive elements to convert said electromagnetic energy of the last stage of said plurality of stages to convert said electromagnetic energy emanating from said active and passive elements to a single circular polarization.

56. An array according to claim 41 wherein said phase shifter means includes a phase shifting material responsive to different potential levels for switching said phase shifting material between states which switch incident electromagnetic radiation between said given polarization and said opposite polarization.

57 An array according to claim 50 wherein said phase shifter means includes a phase shifting material responsive to different potential levels for switching said phase shifting material between states which switch incident electromagnetic energy between said given polarization and said opposite polarization.

58. An array according to claim 56 wherein said phase shifting means further includes means for applying said different potential levels to said phase shifter material.

59. An array according to claim 57 wherein said phase shifting means further includes means for applying said different potential levels to said phase shifter material.

60. A method for fabricating an array comprising the steps of:

forming a plurality of insulating media having a plurality of wavelength and polarizing elements embedded therein at an angle relative to the surfaces of said media such that the spacing between elements halves for each different medium in said plurality of said media,

forming a phase shifter arrangement such that a portions thereof of conductive material are disposed on one of said surfaces of said media in registry with every other element in each of said media and other portions of which of conductive material are disposed on another of said surfaces overlapping all of said elements, and, a phase shifting material disposed over at least said every other element

stacking said plurality of media such that the topmost insulating medium has two elements and each succeeding medium has twice as many elements as a preceding medium.

61. A method according to claim 60 wherein the steps of forming a plurality of insulating media includes the steps of:

stacking alternating layers of an insulating material and a wavelength and polarization sensitive material the thickness of said layers of insulating material determining the spacing between said elements, and

slicing said layers at an angle to form said plurality of insulating media with said elements embedded therein.

62. A method according to claim 60 wherein the steps of forming a phase shifter arrangement include the steps of:

depositing transparent, conductive layers on said surfaces of said insulating media,

forming said portions of said conductive material on said one of said surfaces of each of said media by photolithography,

affixing a spacer of insulating material about the periphery of said one of said surfaces of each of said media, and

introducing a phase shifting material over said one of said surfaces of each of said media.

63. A method according to claim 60 further including the step of sealing the topmost of said media with a layer of insulating material.

64. A method according to claim 60 wherein said insulating media are made of $Si0_2$.

65. A method according to claim 60 wherein said insulating media are made of optically transparent layers.

66. A method according to claim 60 wherein said elements are made of cholesteric liquid crystal material.

67. A method according to claim 60 wherein said angle is 45°.

68. A method according to claim 60 wherein said conductive material is indium tin oxide.

69. A method according to claim 62 wherein said phase shifting material is in liquid form.

70. A method according to claim 62 wherein said phase shifting material is a liquid crystal.

71. A method according to claim 62 wherein said phase shifting material is a solid state electro-optic material.